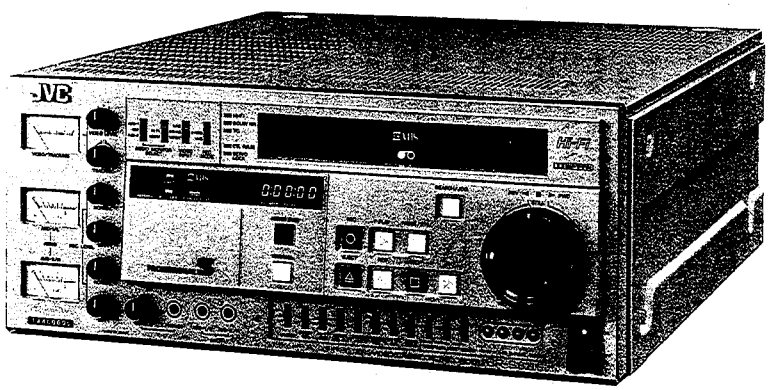
INSTRUCTIONS

JVC

BR-S611E

VIDEO CASSETTE RECORDER
MAGNETOSCOPE A CASSETTE
VIDEOCASSETTENRECORDER

S-VHS 625 VHS PAL Hi-Fi



PGD30002-159-01

Warning Notice
FOR YOUR SAFETY (Australia)

1. Insert this plug only into effectively earthed three-pin power outlet.
2. If any doubt exists regarding the earthing, consult a qualified electrician.
3. Extension cord, if used, must be three-core correctly wired.

IMPORTANT (In the United Kingdom)
Mains Supply (AC 240 V~)
WARNING – THIS APPARATUS MUST BE EARTHED

The wires in this mains lead are coloured in accordance with the following code;

GREEN-and-YELLOW:	EARTH
BLUE:	NEUTRAL
BROWN:	LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows. The wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked with the letter E or by the safety earth symbol ⏚ or coloured GREEN or GREEN-AND-YELLOW. The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or which is coloured BLACK. The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

POWER SYSTEM

Connection to the mains supply
The operating voltage of this set is preset to 240 V~ at the factory.
Before connecting to mains, check that the voltage selector on the rear panel is set to the same voltage as your local mains supply.
Adapting to local power line
This set operates on either 110, 127, 220 or 240 V~.
If the preset voltage is different from the power line voltage in your area, reset the voltage selector by inserting a screwdriver into the slot of the voltage selector and turning it until the correct voltage is displayed.

This equipment has been produced to comply with Directive number 82/499/EEC.

WARNING:

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION

To prevent electric shock, do not open the cabinet. No user serviceable parts inside. Refer servicing to qualified service personnel.

Note: The rating plate and the safety caution are on the rear of the unit.

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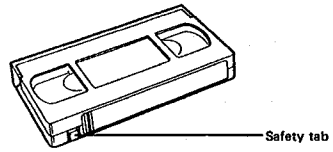
PRECAUTIONS

Handling and storage

- Avoid using the recorder under the following conditions:
  – extremely hot, cold or humid places,
  – dusty places,
  – near appliances generating strong magnetic fields,
  – places subject to vibrations, and
  – poorly ventilated places.
- Be careful of moisture condensation.
  Avoid using the recorder immediately after moving it from a cold place to a warm place or soon after heating a room which was cold. The water vapour in warm air will condense on the still-cold video head drum and tape guides and may cause damage to the tape and the recorder.
- Handle the recorder carefully.
  - Do not block the ventilation openings.
  - Do not place anything heavy on the recorder.
  - Do not place anything which might spill and cause trouble on the top cover of the recorder.
  - Use in horizontal (flat) position only.
- In case of transportation,
  - Avoid violent shocks to the recorder during packing and transportation.
  - Before packing, be sure to remove the cassette from the recorder.

Video cassettes

- This recorder employs S-VHS and VHS cassettes only.
  S-VHS: SE-180 for 180 minutes, SE-120 for 120 minutes and SE-60 for 60 minutes of recording.
  VHS: E-240 for 240 minutes, E-180 for 180 minutes, E-120 for 120 minutes, E-90 for 90 minutes, E-60 for 60 minutes and E-30 for 30 minutes of recording.
- Video cassettes are equipped with a safety tab to prevent accidental erasure. When the tab is removed, recording cannot be performed. If you wish to record on a cassette whose tab has already been removed, use adhesive tape to block the hole.



- Avoid exposing the cassettes to direct sunlight. Keep them away from heaters.
- Avoid extreme humidity, violent vibrations or shocks, strong magnetic fields (near a motor, transformer or magnet) and dusty places.
- Place the cassettes in cassette cases and position vertically.

The previous S-VHS logo mark has been changed to S-VHS. Regardless of this change in the official logo, the S-VHS system represented by either logo, new or old, remains completely identical, and therefore products carrying either logo can be used interchangeably.

FEATURES

High-quality video recording and playback
Conforming to the S-VHS format which offers a picture with well over 400 lines of horizontal resolution, the BR-S611E employs the Standard Play mode only to ensure the highest possible basic performance and the best possible overall picture quality, as required from an editing recorder.

Improved picture quality
Newly developed technologies for picture improvement include: a chroma enhancer (Faroudja circuit) to achieve sharp colour pictures with greatly reduced colour spreading at image borders; a CNR system to reduce chroma noise; an AUTO EQ circuit to compensate for deterioration of luminance signal frequency response due to over-played tapes, worn heads, or different tape characteristics; an improved drum motor to reduce picture jitter and colour snaking.

Editing operability
The BR-S611E has 45-pin parallel remote control connector, so that it can be used for the feeder recorder with the RM-86U/RM-G810U Editing Controller.

Audio dub function
The BR-S611E allows the normal audio channel-2 soundtrack to be replaced, so that a narration etc. can be added to a previously recorded tape.

Heavy-duty mechanism
Independent direct-drive motors are provided for the head drum, capstan and reels. For higher reliability and durability, all components are mounted on a heavy-duty aluminum diecast chassis.

Separate Y/C input/output connectors
In addition to the composite video signal, the luminance (Y) and chroma (C) signals can be input and output as separated signals, thereby producing clear colour pictures with minimized colour noise. To suppress deterioration of colour signals in dubbing, and thereby improve the overall quality of colour dubs, the Y/C 627 mode is also available.

Variable-speed dial search and jog control
Convenient, easy-to-operate, concentric control dials are provided for fast and accurate location of edit points. Turning the outer dial varies the tape speed from still to 10 times normal in either direction. The inner dial functions as a jog control which regulates the tape movement in either direction, accurately responding to the speed with which the dial is turned.

Hi-Fi VHS audio with dynamic range of more than 87 dB
A pair of rotary FM-audio heads is provided exclusively for the recording and playback of Hi-Fi audio signals with an extended frequency response and dynamic range. Separate input terminals are provided for Hi-Fi and normal audio so that different soundtracks can be recorded on these tracks. The normal audio is two-channel with the Dolby* noise reduction system.

*Dolby noise reduction system under license from Dolby Laboratories Licensing Corporation.
"Dolby" and the double-D symbol ⧈ are trademarks of Dolby Laboratories Licensing Corporation.

Manual audio/video level control
The recording level of the video and audio signals can be controlled manually by referring to independent level meters. The video level meter also serves as a tracking meter during playback.

Newly developed auto-cleaning mechanism
The video and Hi-Fi audio heads are automatically cleaned when the tape is loaded or unloaded.

Concentrated indications of recorder status settings
Easy-to-see LED indicators are provided on the front panel for servo lock, CTL pulse, time code, Dolby NR and Hi-Fi Audio.

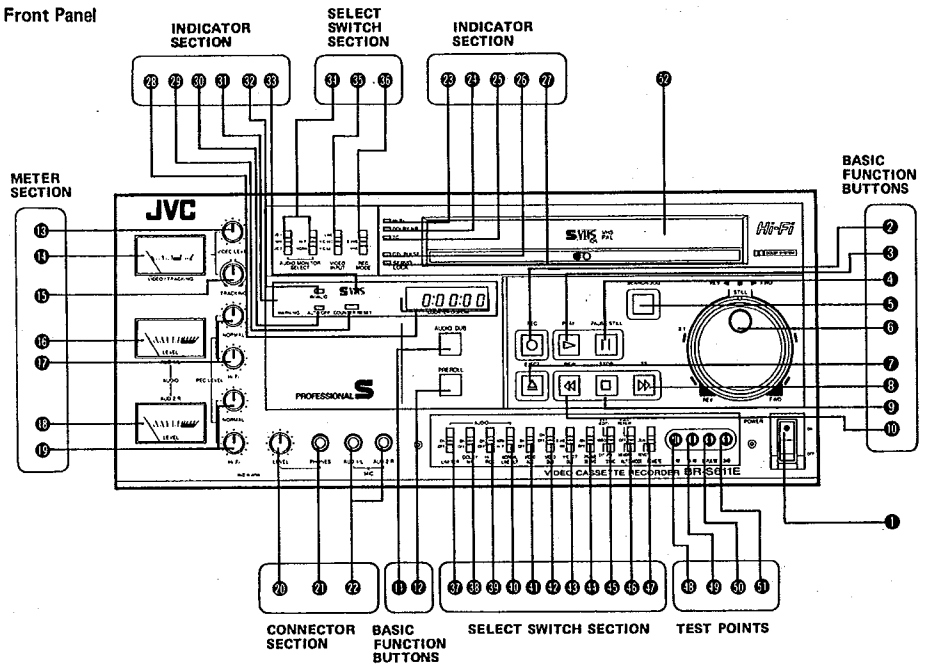
Front panel test points
To facilitate alignment, test points for the video head and Hi-Fi audio head output signals are provided on the front panel.

Half-loading mechanism
A new tape loading mechanism, called "half-loading", is employed to enable CTL pulses to be read even in the FF and REW modes.

Other features
- Balanced audio inputs and outputs for Hi-Fi and normal audio
- External sync and RF output (for DOC) connectors
- Self-illuminated function buttons
- Automatic repeat playback and counter Memory function
- 19-Inch EIA rack mounting possible
- Selectable audio monitor output (AUD-1/AUD-2/MIX/Hi-Fi/Normal)
- Digital time counter in hours, minutes and seconds
- Framing servo on/off switch
- Headphone jack with adjustable output level
- Recording and playback of EBU time code
- Timer recording and playback
- Hour meter showing up to 1000 hours
- Two VIDEO LINE OUT connectors and two separate Y/C IN/OUT (Y/C 627 & Y/C 443) connectors
- Hi-Fi audio output and Hi-Fi/normal switchable audio output connectors
- Hi-Fi audio recording on/off switch
- Microprocessor-controlled diagnostic warning system for detection and indication of electronic and mechanical malfunctions

CONTROLS AND CONNECTORS

Front Panel



BASIC FUNCTION BUTTONS

❶ POWER switch
Set to ON to turn the power on. The indicator will light and the level meters will be illuminated.

❷ Record button (REC)
Press together with the PLAY button for recording. Audio is recorded on both channels, if there are signals for them. The REC and PLAY buttons will remain illuminated during recording. When the REC button is pressed during playback, the monitor screen switches from the playback picture to the E-E mode picture, allowing you to monitor the signals applied to the input terminals.

❸ PLAY button
Press to start playback. The PLAY button will be illuminated. Press together with the REC button to start recording.

❹ PAUSE/STILL button
Press to stop the tape temporarily during recording or playback. The button will be illuminated. To release the Pause or Still mode, press any button except EJECT corresponding to the mode you wish to enter next.

❺ SEARCH/JOG button
Pressing this button enables the rotary search/jog dials. The button will be illuminated.

❻ Rotary search/jog dials
Constructed in the form of dual concentric controls, the outer control functions as a search dial and the inner one functions as a jog dial.
Search dial: When the dial is set to STILL (centre position), the Still mode is entered with the STILL indicator lit. When the dial is turned clockwise toward FWD, forward playback takes place at a speed corresponding to the dial setting, with the FWD indicator lit. When the dial is turned counterclockwise toward REV, reverse playback takes place at a speed corresponding to the dial setting, with the REV indicator lit. The search speed is continuously variable between 1/30 and10 times normal in both directions. If the control mode is changed by any function button, the dial setting remains unchanged and the corresponding speed is instantly engaged by pressing the SEARCH/JOG button.
Jog dial: Use the jog dial to view the tape manually; the tape moves at a speed with which this dial is turned. When the dial is turned clockwise, forward playback takes place, and vice versa. When the dial is stationary, the picture is still. The jog mode cannot be used in the Edit or Record mode.

❼ EJECT button
Press to eject the cassette. This button can be pressed in the Stop mode or immediately after the STOP button has been pressed.

❽ Fast Forward button (FF)
Press to fast forward the tape. While the tape is being fast forwarded, the FF button will remain illuminated. This button can be pressed in any mode except Record, or Eject. To release the Fast Forward mode, press the PLAY, STOP or REW button depending on the mode you want to enter next. Pressing this button in the Play or Search mode enables high-speed playback at about 10 times normal speed in the forward direction. During search the PLAY and FF buttons will remain illuminated.

❾ STOP button
Press to stop the tape. When the STOP button is pressed, the tape is unloaded and then the Stop mode is engaged. The STOP button blinks during tape unloading and remains lit upon completion of unloading.

❿ Rewind button (REW)
Press to rewind the tape. While the tape is being rewound, the REW button will remain illuminated. This button can be pressed in any mode except Record or Eject. To release the Rewind mode, press the PLAY, STOP or FF button depending on the mode you want to enter next. Pressing this button in the Play or Search mode enables high-speed playback at about 10 times normal speed in the reverse direction. During search the PLAY and REW buttons will remain illuminated.

⓫ AUDIO-DUB button
NORMAL AUDIO channel-2 soundtrack can be dubbed. For audio dubbing, press this button together with the PLAY button.

⓬ PREROLL button
Operative in the Still mode. When this button is pressed after the edit point has been determined by pressing the PAUSE/STILL button, the tape is rewound by about 10 seconds of program time and enters the Edit Standby mode. (The PLAY and PAUSE/STILL buttons will be illuminated.) To cancel this mode, press the PLAY button.

METER SECTION

⓭ VIDEO LEVEL control
To adjust the video recording level manually, set the VIDEO AGC switch ⓫ to OFF and turn this control so that the meter ⓮ deflects into the green area.

⓮ VIDEO/TRACKING meter
Functions as a video level meter during recording and as a tracking meter during playback.

⓯ TRACKING control
To remove noise bars or to correct Hi-Fi tracking during playback, turn this control so that the meter ⓮ makes its maximum deflection.

⓰ AUDIO-1/LEFT AUDIO level meter
Indicates the recording level of the normal audio-1 or Hi-Fi left-channel signal during recording, the playback signal during playback or the E-E signal in any other mode. Switching between normal and Hi-Fi is done with the AUDIO MONITOR SELECT switch.

⓱ NORMAL/Hi-Fi (AUD-1/LEFT) REC LEVEL controls
To adjust the normal audio-1 or Hi-Fi left-channel signal, turn the corresponding control so that the meter ⓰ deflects to "0" with the loudest signal.

⓲ AUDIO-2/RIGHT AUDIO level meter
Indicates the recording level of the normal audio-2 or Hi-Fi right-channel signal during recording, the playback signal during playback or the E-E signal in any other mode.

⓳ NORMAL/Hi-Fi (AUD-2/RIGHT) REC LEVEL controls
To adjust the normal audio-2 or Hi-Fi right-channel signal, turn the corresponding control so that the meter ⓲ deflects to "0" with the loudest signal.

CONNECTOR SECTION

⓴ PHONES LEVEL control
Adjusts the output level of the PHONES jack.

㉑ PHONES jack
Connect a set of headphones for monitoring the sound being recorded.

㉒ MIC jacks (AUD-1/LEFT, AUD-2/RIGHT)
Connect microphones to switch the input signal from line to microphone.

INDICATOR SECTION

㉓ Hi-Fi indicator
Lights when Hi-Fi audio signals are being recorded.

㉔ Dolby NR indicator
Lights when the built-in Dolby* noise reduction system is activated.

㉕ Time Code indicator (TC)
Remains lit when the rear panel TIME CODE/AUDIO select switch ㉘ is in the TIME CODE position.
Note: When the indicator is lit, the NORMAL audio-2 signal is muted.

㉖ CTL PULSE indicator
Lights when a tape with no control pulse recorded is played back.

㉗ SERVO LOCK indicator
Lights when the servo system is locked for normal operation.

㉘ Realtime tape counter
Shows tape time in hours, minutes and seconds by counting the number of CTL pulses. This tape counter does not function when a tape with no CTL pulses is being played back. The display starts blinking 5 to 10 minutes before the tape end during recording.

㉙ COUNTER RESET button
Press to reset the tape counter to zero.

㉚ AUTO OFF indicator
If the tape running is in some way incorrect, this indicator will light.

㉛ WARNING display
Two-digit numbers indicate various malfunctions for easy troubleshooting. For more details, refer to pages 18 and 19.

㉜ INVALID indicator
Lights when the REC and PLAY buttons are pressed in the S-VHS recording mode with a standard VHS tape loaded. No change in mode will take place, but the previous operation will continue.

㉝ S-VHS indicator
Lights when the S-VHS recording mode is selected. In playback of S-VHS recordings, lights automatically.
Also lights when playing back the blank section of VHS tapes.

SELECT SWITCH SECTION

㉞ AUDIO MONITOR SELECT switches
These switches select the audio output available from the PHONES jack and the AUDIO MONITOR connector. The Hi-Fi/NORMAL switch also functions to switch the audio level meters between Hi-Fi and NORMAL.
Hi-Fi: To monitor the Hi-Fi audio signals.
NORMAL: To monitor the NORMAL audio signals.
AUD-1/LEFT: To monitor the NORMAL audio-1 or Hi-Fi left-channel signal.
MIX: To monitor a mixture of both channels.
AUD-2/RIGHT: To monitor the NORMAL audio-2 or Hi-Fi right-channel signal.
Note:
The output from the AUDIO OUT NORMAL RIGHT connector is shorted if the TC indicator ㉕ is lit.

㉟ VIDEO INPUT select switch
Selects the video input signal applied to the VIDEO IN LINE, YC443 or YC627 connector.
LINE: Set to this position when recording the composite video signal applied to the VIDEO IN LINE connector.
YC443: Set to this position when recording the separated Y/C signals conforming to the YC443 system (S-VHS signal) applied to the YC443 connector.
YC627: Set to this position when recording the separated Y/C signals conforming to the YC627 system (Y and down converted C signals) coming from the YC627 OUT connector applied to the YC627 connector.

㊱ REC MODE select switch
S-VHS : To record in the S-VHS mode (SP).
VHS : To record in the VHS mode (SP).

㊲ AUDIO LIMITER switch
Set to ON to activate the built-in audio limiter circuit. Manual level control is possible even when the limiter circuit is on.

㊳ Audio noise reduction switch (NR)
Set to ON to activate the built-in Dolby* noise reduction system for the NORMAL audio signal.

㊴ Hi-Fi REC select switch
ON: Set to ON to record the Hi-Fi audio signal.
OFF: Set to OFF when recording the Hi-Fi audio signal is not desired.

㊵ NORMAL LINE OUT select switch
Selects the output signal from the AUDIO OUT NORM/Hi-Fi connectors.
NORM: Set to this position to output the normal audio signals from the AUDIO OUT NORM/Hi-Fi connectors.
Hi-Fi: Set to this position to output the Hi-Fi audio signals from the AUDIO OUT NORM/Hi-Fi connectors.

㊶ VIDEO AGC switch
Set to ON to activate the built-in video AGC circuit.

㊷ VIDEO DUB switch
OFF: Normally set to this position. The detail enhancer (only VHS mode) circuit will be ON in recording, and the noise reduction circuit will be ON in playback.
ON: In this position, the detail enhancer (only VHS mode) circuit is OFF in recording, and the noise reduction effect is reduced in playback. Set the switch to this position when using the BR-S611E as the player in dubbing.

㊸ YC627 OUT select switch
S-VHS: In YC627 dubbing with an S-VHS recorder (BR-S-810E/BR-S610E/BR-S811E/BR-S611E) in the S-VHS mode, set the player to this position.
VHS: In YC627 dubbing with a VHS recorder (BR-8600E/BR-6600E) or with an S-VHS recorder (BR-S810E/BR-S610E/BR-S811E/BR-S611E) in the VHS mode, set to this position.

⓮ FRAME SERVO switch
Normally set this switch to ON. When tapes containing random-interlaced or low-S/N video signals are used, set to OFF.

⓯ SYNC select switch
Selects between different reference sync signals for the servo system during recording and playback.
EXT (REC): Set to this position when using the BR-S611E as a recorder in the external sync mode.
EXT (PB): Set to this position when using the BR-S611E as a player in the external sync mode.
VIDEO: Set to this position when recording or playing back using the input video signal as a reference signal.
For more information, refer to "REFERENCE SYNC SIGNALS on page 15.

⓰ AUTO MODE switch
Selects between different automatic operations.
FULL REPEAT: For repeated playback from the beginning of the tape.
OFF: No automatic operation.
MEMORY: In the Rewind or Fast Forward mode, the tape will stop automatically at the counter reading of "0" or a few frames away from "0".

⓱ REMOTE switch
LOCAL: Set to this position when the BR-S611E is to be controlled with its own function buttons. (With this switch set to the LOCAL position, the remote control unit connected to the rear panel 45-pin REMOTE connector will not function.)
REMOTE: Set to this position when the BR-S611E is to be remote-controlled with the remote control unit connected to the 45-pin REMOTE connector. (No function buttons of the recorder except STOP and EJECT will function when this switch is set to the REMOTE position.)

TEST POINTS

⓲ V-RF test point
The video head signal is output in the form of an FM signal during playback, allowing clogged or worn heads to be detected.

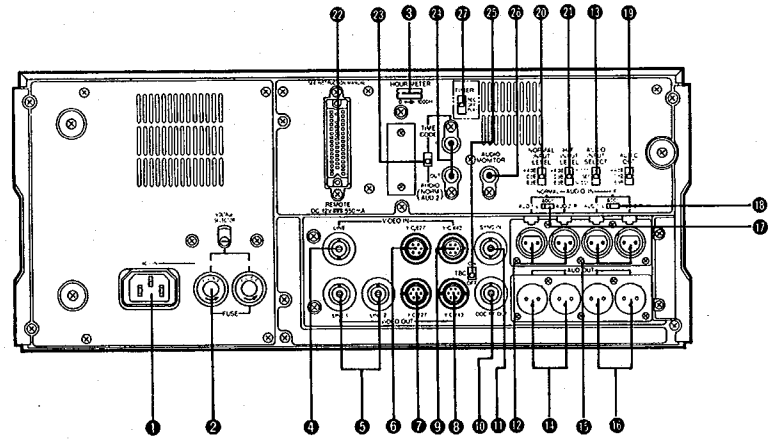
⓳ A-RF test point
The Hi-Fi audio signal is output in the form of an FM signal during playback, allowing clogged or worn heads to be detected.

⓴ D-PULSE pin
Connect to the external trigger terminal of an oscilloscope for a sync signal.

㉑ GND pin
Connect to the ground terminal of an oscilloscope.

㉒ Cassette loading slot
With the POWER switch set to ON, insert a video cassette with its labelled edge facing toward you. The cassette carriage will automatically take control and retract the cassette into the correct loaded position.

Rear Panel



❶ AC input socket (AC IN)
Connect to 110/127/220/240 V AC, 50/60 Hz power outlet.

❷ FUSE holder

❸ HOUR METER
Indicates the total operating time. After 1,000 hours of operation, the red line moves to the top end of the scale.

❹ VIDEO IN LINE connector
Input connector for the composite video signal.

❺ VIDEO OUT LINE connectors
Output connectors for the composite video signal. The same signal is output via these connectors in parallel.

❻ VIDEO IN YC627 connector
Receives the Y/C627 signal (separated luminance and down converted signals) via a Y/C cable.

❼ VIDEO OUT YC627 connector
Delivers the Y/C627 signal via a Y/C cable.

❽ VIDEO OUT YC443 connector
Delivers the Y/C443 signal to be monitored. Connect to a monitor equipped with an S-VIDEO input terminal using an optional Y/C cable.

❾ VIDEO IN YC443 connector
Receives the Y/C443 signal (separated luminance and chroma signals) via a Y/C cable.

❿ DOC RF OUT connector
For connection to a DOC (Dropout Compensator) or the DOC input terminal of a time base corrector.

⓫ External sync signal input connector (SYNC IN)
Accepts an external reference sync signal when the recorder is to be operated in the external sync mode. The external sync signal can be a composite sync or composite video signal.

⓬ AUDIO IN NORMAL connectors (AUD-1/L, AUD-2/R)
Normal audio input connectors for Audio-1 (Left) and Audio-2 (Right).

⓭ AUDIO INPUT SELECT switch
H COM: Set to this position to record the audio signals being input to the AUDIO IN Hi-Fi connectors onto both the Hi-Fi and Normal audio tracks. "Hi-Fi Combined" recording.
SEP: Set to this position to record the audio signals being input to the AUDIO IN Hi-Fi connectors onto the Hi-Fi audio track, and to the AUDIO IN NORMAL connectors onto the Normal audio track. "Separate" recording.
N COM: Set to this position to record the audio signals being input to the AUDIO IN NORMAL connectors onto both the Hi-Fi and Normal audio tracks. "Normal Combined" recording.

⓮ AUDIO OUT NORM/Hi-Fi connectors (AUD-1/L, AUD-2/R)
Normal audio or Hi-Fi Audio output connectors for Audio-1 (Left) and Audio-2 (Right) depending on the setting of the front panel NORMAL LINE OUT select switch.

⓯ AUDIO IN Hi-Fi connectors (AUD-1/L, AUD-2/R)
Hi-Fi audio input connectors for Audio-1 (Left) and Audio-2 (Right).

⓰ AUDIO OUT Hi-Fi connectors (AUD-1/L, AUD-2/R)
Hi-Fi audio output connectors for Audio-1 (Left) and Audio-2 (Right).

⓱ NORMAL AUDIO input impedance switch
Select either 10 k-ohms or 600-ohms according to the impedance level of the audio input signal. Set to ON for 600-ohms balanced audio input signals and to OFF for high impedance (10 k-ohms) signals. The level is switched for both audio channels simultaneously.

⓲ Hi-Fi AUDIO input impedance switch
Select either 10 k-ohms or 600-ohms according to the impedance level of the audio input signal. Set to ON for 600-ohms balanced audio input signals and to OFF for high impedance (10 k-ohms) signals. The level is switched for both audio channels simultaneously.

⓳ AUDIO output level select switch
Select -6 dB, 0 dB or +4 dB according to the level of the audio output signal. The level is switched for both Normal/Hi-Fi and Left/Right audio channels simultaneously.

⓴ NORMAL AUDIO input level select switch
Select -6 dB, 0 dB or +4 dB according to the level of the Normal audio input signal. The level is switched for both Left/Right audio channels simultaneously.

㉑ Hi-Fi AUDIO input level select switch
Select -6 dB, 0 dB or +4 dB according to the level of the Hi-Fi audio input signal. The level is switched for both Left/Right audio channels simultaneously.

㉒ REMOTE control connector
Connect a JVC 45-pin remote control unit.

㉓ TIME CODE/AUDIO select switch
Set to TIME CODE to record the time code on the Normal audio track channel 2. Normally set this switch to AUDIO.

㉔ TIME CODE IN/OUT connectors
Connect a time code generator to the IN connector when you want to record the EBU time code. The TIME CODE/AUDIO select switch must be set to TIME CODE. To obtain the time code for editing, connect a time code reader to the OUT connector.

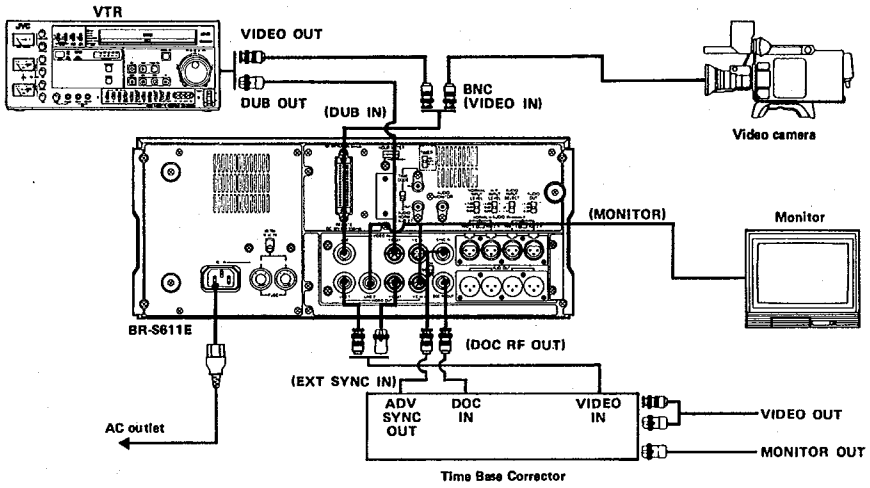
㉕ Time base corrector switch (TBC)
Normally set to OFF. When you use a TBC, set it to ON. Also set the SYNC select switch to EXT (PB).

㉖ AUDIO MONITOR connector
The audio signal selected by the AUDIO MONITOR SELECT switches is available via this connector.

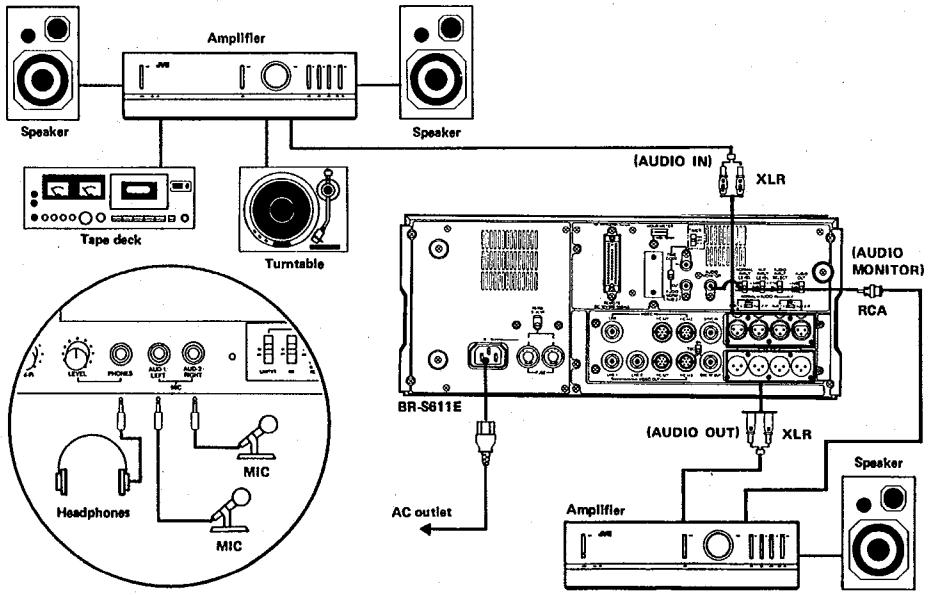
㉗ TIMER select switch
Power can be switched on using an ordinary timer.
REC: The BR-S611E starts recording when the preset time is reached, and at the end of the tape, enters the Rewind mode automatically and stops at the beginning of the tape.
OFF: No timer operation.
PLAY: The BR-S611E starts playing back when the preset time is reached, and at the end of the tape, enters the Rewind mode automatically and stops at the beginning of the tape.

CONNECTIONS

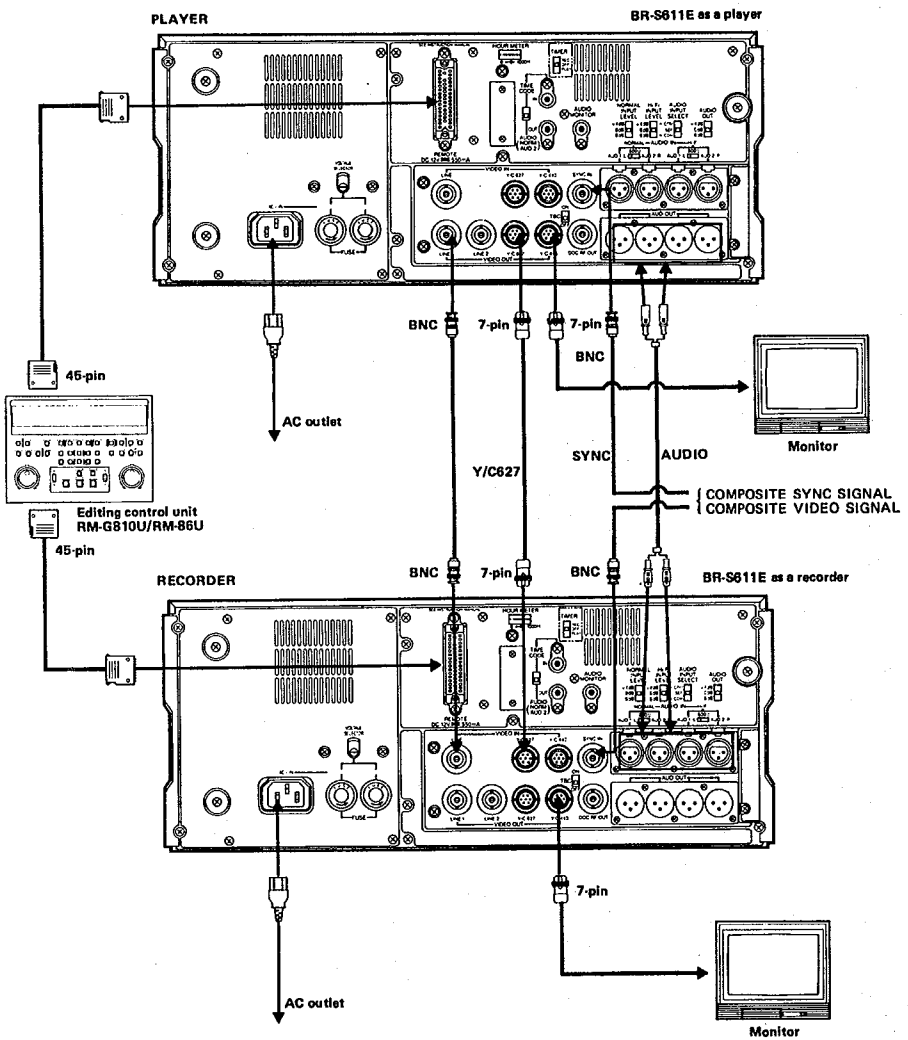
VIDEO EQUIPMENT CONNECTION



AUDIO EQUIPMENT CONNECTION

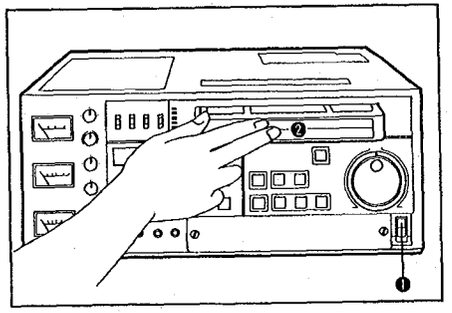


CONNECTION FOR TAPE-TO-TAPE EDITING



LOADING AND UNLOADING A VIDEO CASSETTE

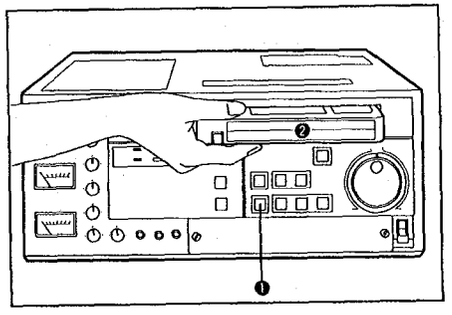
LOADING



❶ Set the POWER switch to ON. The POWER indicator will light.
❷ Insert a cassette with its labelled side facing you. The cassette will automatically be retracted and loaded in the correct position.
- With a cassette inserted, the red door flap appears and displays the ●O mark to indicate "cassette inserted".
- The STOP button lamp will illuminate.
- The automatic loading mechanism will operate only when the cassette is inserted correctly.
- If loading does not result in positioning the cassette correctly, it will automatically be ejected after about 6 seconds.

Note:
After unpacking your new recorder the red door flap with the "cassette inserted" mark may be displayed. This is not due to any defect of the unit. Simply insert a cassette. After the first loading/unloading cycle, the door will function properly to show the blue flap when no cassette is inserted and the red flap when a cassette is inserted.

UNLOADING

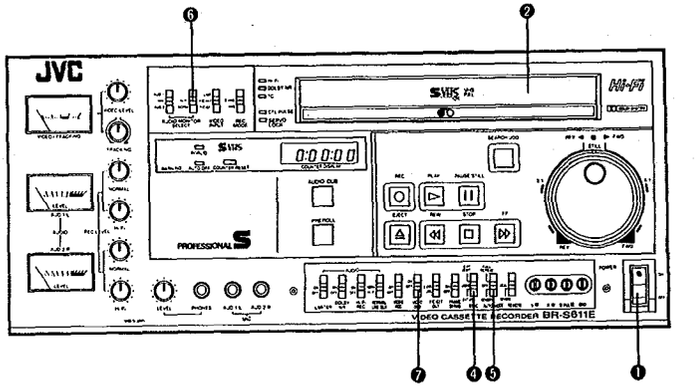


❶ Press the EJECT button in the Stop mode. The cassette will automatically be ejected.

❷ Remove the cassette from the cassette loading slot.
- The EJECT button can be pressed immediately after the STOP button has been pressed. The logic circuit will memorize the sequence; first setting the recorder in the Stop mode and then automatically changing it to the Eject mode.

PLAYBACK

PREPARATION



❶ Set the POWER switch to ON.
❷ Insert a pre-recorded video cassette into the cassette loading slot.
❸ When a time base corrector is used, set the rear panel TBC switch to ON and the SYNC select switch to EXT (PB).
❹ Set the SYNC select switch to VIDEO.
- If an external sync signal is used, set it to EXT (PB).

❺ Set the AUTO MODE switch as required. See page 13.
❻ Set the AUDIO MONITOR SELECT switch to either Hi-Fi or NORMAL.
❼ Set the VIDEO DUB/YC627 OUT switch as required. Refer to page 6.

Notes:
- If a video signal is applied to either VIDEO IN connector, playback is locked to this video signal. Therefore, if the sync signal contained in this video signal is not stable, the playback picture will be distorted when the SYNC select switch is in the VIDEO position.
- Set the SYNC select switch to "VIDEO" in editing, otherwise horizontal bend might occur.
- The SEARCH x 1 mode can be used to change the reference signal selected by the SYNC select switch to an internal oscillator signal for distortion-free search.
- When dubbing to other recorders with this unit used as the player, set the YC627 OUT select switch according to the recorder and mode. For details, refer to page 6.

PROCEDURE

❶ Press the PLAY button. The tape will start running and the playback picture will appear on the monitor screen.
❷ Press the STOP button to stop playback.

Tracking adjustment
When a tape recorded with a different recorder is played back noise bars may appear or the picture may be blurred. In such a case, turn the TRACKING control to correct the picture referring to both the monitored picture and the tracking meter (VIDEO/TRACKING level meter). Optimum tracking is obtained when the meter makes its maximum deflection.
Note:
It is recommended that tracking be checked even when tapes recorded using this unit are played back.

Input monitoring during playback
If you wish to monitor the signal applied to the input connector during playback, press the REC button in the Play mode. The input signal will appear on the monitor screen.
Note:
Do not press the REC and PLAY buttons simultaneously, otherwise the unit enters the Record mode and any recordings on the tape are erased.

DIAL SEARCH & SHUTTLE SEARCH

SHUTTLE SEARCH AND JOG CONTROL

The arrangement of the search dial and the jog dial is concentric; the outer control functions as a search dial and the inner, a jog dial. These functions are especially convenient for quick location of edit points.

SEARCH

Turn the outer dial until the desired search speed is reached.

- The search speed is continuously variable between 1/30 and 10 times normal in both directions.
- The STILL position (centre click-stop) provides a still picture.
- Turn the dial clockwise to search in the forward direction and counterclockwise to search in the reverse direction.
- The X1 click-stop provides normal speed in the forward direction and X-1, in the reverse direction.
- There is another click-stop between X1 and the fully clockwise position and between X-1 and the fully counterclockwise position. These are the positions for 6 times normal speed in forward and reverse respectively.
- The fully clockwise position and the fully counterclockwise position provide about 10 times normal speed.

Note:

- When the dial is set to the X1 click-stop, the internal sync mode is automatically entered.

JOG

Turn the inner dial.

- A still picture is obtained at any moment you stop turning the dial.
- To move the picture in the forward direction, turn the dial clockwise; to move it in the reverse direction, turn counterclockwise.

To cancel the search or jog mode:

- Press the PLAY, PAUSE/STILL, FF, REW or STOP button according to the mode you want to enter next. The search dial setting remains unchanged.

Notes:

- During search, an extra pair of video heads operate and pick up only even-number fields of the picture. When the dial is set to X1, frame playback is engaged.
- If the Still mode continues for too long a time, the tape could be damaged. Therefore, if you leave the unit in the Still mode for more than about 3 minutes 45 seconds, the video track being traced will shift automatically.

SEARCH REW/SEARCH FF

When the REW or FF button is pressed in the Stop mode, normal rewind or fast forward takes place. When these buttons are pressed in the Play, Search or Still mode, the tape runs at about 10 times normal speed in the corresponding direction. The buttons can be locked and the indicator lights. You can follow the speeded-up picture on the monitor screen.

REPEAT PLAYBACK, COUNTER SEARCH & AUTO REWIND

REPEAT PLAYBACK

When the entire tape, from the beginning to the end, is to be repeated, proceed as follows:

1. Set the AUTO MODE switch to FULL REPEAT.
2. Press the PLAY button to start playback.
   - When the tape reaches its end, it is rewound to the beginning and then played back again automatically. The procedure is repeated as many times as desired.

COUNTER SEARCH

The counter search mechanism functions in conjunction with the tape counter and stops the tape automatically in the Rewind or Fast Forward mode at the counter reading of "0".

1. Press the COUNTER RESET button at a point which you may wish to locate later.
2. Set the AUTO MODE switch to MEMORY.
3. Press the REW or FF button when you need to return to the designated point. The tape will stop automatically at the counter reading of "0".

Notes:

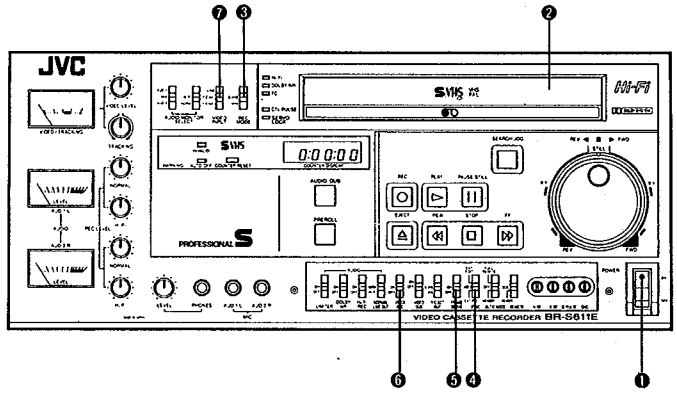
- The counter search mechanism does not function in the Shuttle Search mode.
- The tape may stop at a position slightly deviated from the counter reading of "0".

AUTO REWINDING

When the tape reaches its end in the Play or Record mode, it is automatically rewound to the beginning and then the Stop mode is engaged. The counter search mechanism functions automatically while the tape is being rewound. If the tape reaches its end in the Fast Forward mode, the auto rewind mechanism does not function and the Stop mode is engaged immediately.

RECORDING

PREPARATION

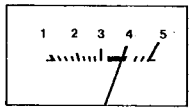


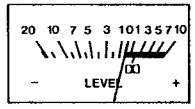
❶ Set the POWER switch to ON.
❷ Insert a video cassette into the cassette loading slot.
❸ Set the REC MODE select switch.
VHS :To record in the VHS SP mode.
S-VHS: To record in the S-VHS SP mode. (Be sure to use an S-VHS tape.)
❹ Set the SYNC switch to VIDEO.
- If an external sync signal is used, set it to EXT (REC).

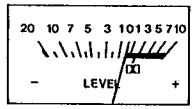
❺ Set the FRAME SERVO switch to ON if framing servo is to be applied to recordings.
- It is recommended that this switch be set to OFF when you record from a tape whose playback picture has an inferior S/N ratio, a multi-generation copy, a tape recorded using a random-interlaced ITV camera or a tape edited using another manufacturer's editor.

❻ Set the VIDEO AGC switch to ON if the built-in video AGC circuit is to be used.
❼ Set the VIDEO INPUT select switch as required.

RECORDING LEVEL ADJUSTMENTS







Video level adjustment

- For automatic level control, set the VIDEO AGC switch to ON.
- For manual level control, set the VIDEO AGC switch to OFF and turn the VIDEO LEVEL control so that the VIDEO/TRACKING meter deflects into the green zone while applying the colour bar video signal to be recorded.

Audio level adjustment

- Set the AUDIO INPUT SELECT switch, on the rear panel, depending on the input signal level.
- Turn the AUDIO REC LEVEL control until the AUDIO meter deflects to "0" with the loudest signal. This is the standard adjustment of the audio recording level.
- Set the LIMITER switch to ON to avoid eventual over-level recordings.

PROCEDURE

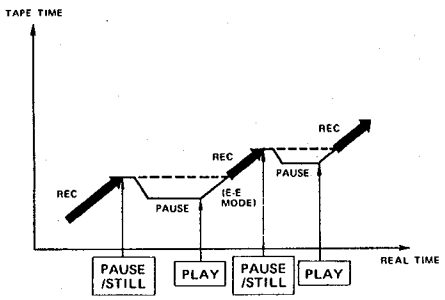
❶ Press the REC and PLAY buttons simultaneously. The Record mode will be engaged and both the REC and PLAY button lamps will light.

Notes:

- YC627 dubbing cannot be performed from VHS to S-VHS.
- In YC627 dubbing using a VHS tape worn by being dubbed several times in the player in the VHS mode, the INVALID indicator may light.

❷ Press the STOP button to stop recording.
- In YC627 dubbing, the top of the EE picture from the recorder may be distorted. This is not due to a defect in the unit. This distortion does not influence recording and playback.
- In YC627 dubbing, colour flashing may occur at the edit point. In this case, it is recommended to use YC 443 dubbing on composite dubbing.

RECORD PAUSE & ASSEMBLE RECORDINGS

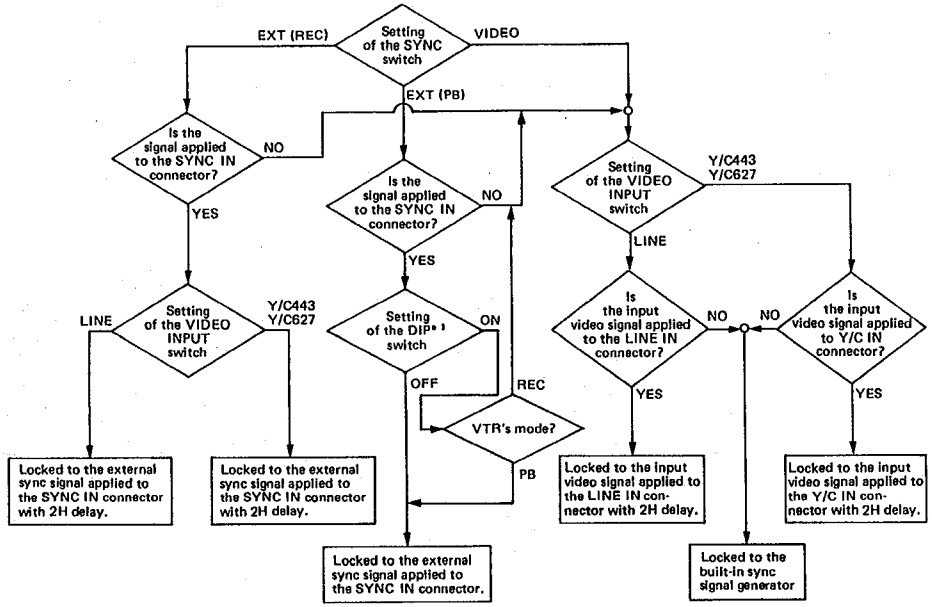


Recording can be stopped temporarily and restarted without detectable distortion in the picture.

1. Press the PAUSE/STILL button during recording. Recording will be stopped with the REC indicator still lit. The tape is automatically rewound by about 2.5 seconds of program time and stops in the Record Pause mode with both the REC and PAUSE/STILL indicators lit. The E-E picture will appear on the screen. When the PAUSE/STILL button is pressed again in this state, the picture recorded immediately before can be seen as a still picture.
   - If recording is restarted immediately after the still picture appears, the top portion of the picture at the edit point may be skewed.
2. To restart recording, press the PLAY button. The tape will be played back for about 2.5 seconds and the mode will switch automatically from playback to recording at the point where the PAUSE/STILL button was pressed.

   Note: In this case, as the colour frame servo does not operate, colour flashing may occur at the edit point.

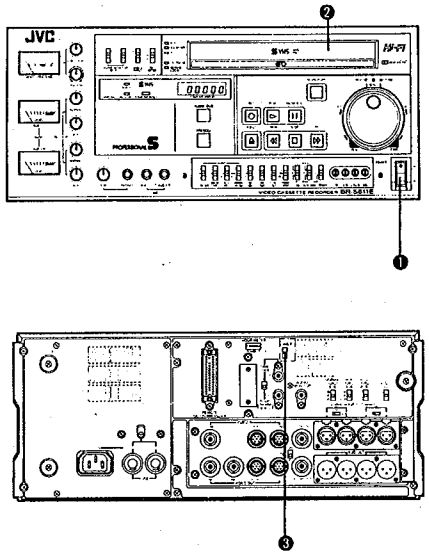
REFERENCE SYNC SIGNALS


Setting of the SYNC switch
EXT (REC)
VIDEO
EXT (PB)
Is the signal applied to the SYNC IN connector?
NO
YES
Is the signal applied to the SYNC IN connector?
NO
YES
Setting of the VIDEO INPUT switch
Y/C443
Y/C627
LINE
Setting of the VIDEO INPUT switch
LINE
Y/C443
Y/C627
Setting of the DIP*1 switch
ON
OFF
REC
VTR's mode?
PB
Is the input video signal applied to the LINE IN connector?
NO
YES
Is the input video signal applied to Y/C IN connector?
NO
YES
Locked to the external sync signal applied to the SYNC IN connector with 2H delay.
Locked to the external sync signal applied to the SYNC IN connector with 2H delay.
Locked to the external sync signal applied to the SYNC IN connector.
Locked to the input video signal applied to the LINE IN connector with 2H delay.
Locked to the built-in sync signal generator
Locked to the input video signal applied to the Y/C IN connector with 2H delay.

*1 DIP switch: An internal switch. Please consult JVC's service section.

TIMER RECORDING & PLAYBACK

If you use a timer unit of appropriate voltage, the BR-S611E can be played back automatically at a preset time or signals from sources connected to the INPUT connectors can be recorded automatically at a preset time.



RECORDING

❶ Set the power switch to ON.
❷ Insert a video cassette into the cassette loading slot.
❸ Set the TIMER SELECT switch to REC.
- There is no need to press the REC and PLAY buttons to engage the Recording Standby mode.

PLAY BACK

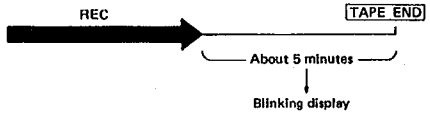
❶ Set the power switch to ON.
❷ Insert a video cassette into the cassette loading slot.
❸ Set the TIMER SELECT switch to PLAY.
- There is no need to press the PLAY button to engage the Playback standby mode.

Notes:
- When the tape reaches its end during timer recording or playback, the tape is automatically rewound to the beginning and stops. Therefore, do not set the timer in such a way that it will switch off power during the process of rewinding.
- To cancel the timer recording or playback mode, set the POWER and TIMER switches to OFF. Then set the POWER switch to ON.
- When the protection tab of the cassette has been removed, timer playback will take place instead of recording.

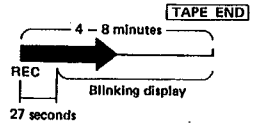
TAPE END WARNING

Tape end warning is given only during recording.

- The counter display starts blinking about 5 minutes before the end of the tape during recording.

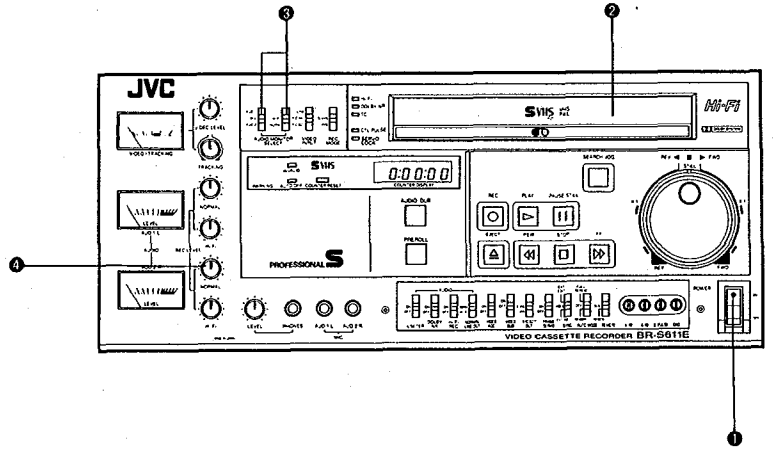


- If recording is started with a cassette with a remaining tape time of only 5 minutes or so, the display starts blinking about 27 seconds after recording has started.



Notes:
- The timing of tape end warning differs slightly depending on the type of cassette.
- With an EC-30 or an SE-C30 compact video cassette (in its adapter), tape end warning does not function.

AUDIO DUBBING



PREPARATION

❶ Set the power switch to ON.
❷ Insert a video cassette into the cassette loading slot.
❸ Set the AUDIO MONITOR SELECT switch to NORMAL and MIX or AUD-2.
❹ Adjust the audio channel-2 recording level by turning the AUDIO CHANNEL-2 NORMAL REC LEVEL control.

PROCEDURE

❶ Press the AUD DUB and PLAY buttons simultaneously. The Audio Dubbing mode will be engaged and both the AUD DUB and PLAY button lamps will light.
❷ Press the STOP button to stop audio dubbing.

WARNING DISPLAY

DIAGNOSTIC CODES

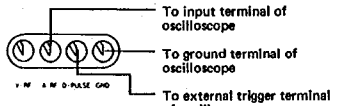
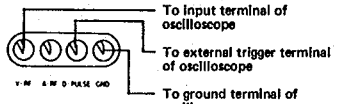
The WARNING display indicates various malfunctions and warnings by numerical codes. When the AUTO OFF indicator lights, it is necessary to turn the power off in order to recover the machine.

	Display		Cause of trouble or warning	Symptom/Operation
	Code	AUTO OFF LED		
Sensors	01	ON	Tape-end sensor LED is blown out.	The cassette is ejected. After ejection, cassette loading is not possible.
	02	ON	Moisture condensation.	The cassette is ejected. After ejection, the drum starts rotating and a cassette cannot be loaded. When condensation has been eliminated, the display turns off and cassette loading becomes possible.
	04	ON	Reel servo power insufficient.	All operations stop and all controls become inoperative.
	05	ON	CPU malfunctions.	All operations stop and all controls are inoperative.
	06	OFF	Playback of LP recordings was attempted.	The cassette is ejected. The display turns off when a cassette is inserted again. Then normal operation to restored.
Loading mechanism	32	OFF	Tape cannot be loaded correctly.	The tape will be unloaded and the cassette ejected. Insert cassette again.
	33	ON	Tape cannot be unloaded.	All controls become inoperative.
	36	OFF	Tape cannot be half-loaded.	The cassette is ejected. After ejection, re-loading of a cassette is possible. When the display disappears, normal operation is restored.
	37	ON	Tape cannot be unloaded from the half-loaded position.	All operations stop and all controls are inoperative.
	39	ON	Unloading does not take place after "32".	All operations stop and all controls are inoperative.
Cassette compartment	40	OFF	Cassette compartment does not retract.	The cassette will be ejected. Insert it again.
	41	ON	Cassette compartment does not lift.	Retracting will be performed again. If able to complete retraction, controls become inoperative when the compartment reaches the fully retracted position.
	42	ON	After "41", retracting fails.	All controls become inoperative.

	Display		Cause of trouble or warning	Symptom/Operation
	Code	AUTO OFF LED		
Leader tape detection	56	OFF	Both tape beginning and end sensors are ON because of broken tape, etc.	The cassette is ejected. The display turns off when a cassette is inserted again. Then normal operation is restored.
	57	OFF	Tape end sensor turns ON during half loading.	Rewind mode is engaged and, if the leader tape is detected within about 3 seconds, the cassette is ejected. The display turns off when a cassette is inserted again. Then normal operation is restored.
	58	OFF	Tape beginning sensor turns ON during half loading.	FF mode is engaged and, if the leader tape is detected within about 3 seconds, the cassette is ejected. The display turns off when a cassette is inserted again. Then normal operation is restored.
Rotating system	70	OFF	Drum motor stops.	All controls except EJECT are inoperative. Recovers when a cassette is inserted again.
	71	OFF	Capstan motor stops.	All controls except EJECT are inoperative. Recovers when a cassette is inserted again.
	72	OFF	Supply reel rotates abnormally.	All controls except EJECT are inoperative. Recovers when a cassette is inserted again.
	73	OFF	Take-up reel rotates abnormally.	All controls except EJECT are inoperative. Recovers when a cassette is inserted again.

TEST POINTS

The output signals from the Hi-Fi audio heads and video heads are available at the front panel test points. Connect an oscilloscope to these test points to check the performance and condition of the unit.

Connection	Items to be checked	Standard waveform
Hi-Fi audio head output  	• Tape-to-head contact • Tape running stability • Inferior RF after head replacement	• "+" triggered
Video head output  	• Compatibility of tape pattern • Tape-to-head contact • Tape running stability • Tracking • Video signal recording level • Abnormality in RF Use a 10:1 probe.	• "+" triggered

INTERNAL SWITCHES

Resetting internal switches enables some functions and circuit parameters to be changed. For resetting internal switches, consult a JVC dealer.

- This recorder has been preset to work with the RM-G810U Editing Control Unit. If the RM-86U Editing Control Unit is to be used, reset the DIP switches S1-1 and S1-2 on the SYSCON board to "ON".
- To prevent deterioration of the luminance signal frequency response with worn heads, or when using tapes that have different characteristics or have been over-played, this recorder incorporates an automatic equalizer (AUTO EQ) circuit which functions in the S-VHS mode. The reference signal to operate this circuit is added to one H line of the vertical blanking time. Prior to shipment, this recorder is preset to add the reference signal to line 11. If VITC (Vertical Interval Time Code), VITS (Vertical Interval Test Signal) or other signal is inserted in this line, these signals will be erased. If these signals are not to be erased, reset the DIP switches SW1-1, 1-2, and 1-3 on the FM R/P board, in order to defeat the AUTO EQ circuit or change the position of the reference signal.

Note:
The AUTO EQ circuit does not function if the reference signal reading position differs from the position of the reference signal added in recording. Also, it will malfunction if the VITC or VITS is recorded at the reference signal reading position.

RF 2H DELAY BOARD

Switch No.	Switch description	Preset	Function
SW3	Chroma enhancer	Up position	Up: Chroma enhancer ON. Down: Chroma enhancer OFF.

PB-Y BOARD

Switch No.	Switch description	Preset	Function
SW1	DOC switch	ON	OFF: With TBC switch "ON", the DOC does not fucntion. ON: With TBC switch "ON", both the TBC and DOC function.
SW2	V pulse switch	ON	OFF: No V pulse is added in the search mode.

FM R/P BOARD

Switch No.	Switch description	Preset	Function
SW2	AUTO EQ circuit switch	AUTO	AUTO: AUTO EQ functions. MANU: AUTO EQ does not function.
SW1-1 SW1-2 SW1-3	Line select switch	OFF ON ON	Set according to the line to which the AUTO EQ reference signal is added.
SW1-4 SW1-5 SW1-6	Not used	OFF OFF OFF	Do not touch these switches.
SW1-7 SW1-8	Not used	OFF OFF	Do not touch these switches.

Line	SW1-1	SW1-2	SW1-3
Defeat	ON	ON	ON
11	OFF	ON	ON
12	ON	OFF	ON
13	ON	ON	OFF
14	OFF	OFF	ON
15	OFF	ON	OFF
16	ON	OFF	OFF
17	OFF	OFF	OFF

REC-C BOARD

Switch No.	Switch description	Preset	Function
SW-1	For adjustment	270°	Do not touch this switch.

SYSCON BOARD

Switch No.	Switch description	Preset	Function
S1-1	Preroll speed	OFF	ON: Maximum preroll speed in editing is 4 times normal, and the RED LED remains lit while the backspaced section is being played from the Record-Pause mode. OFF: Maximum preroll speed in editing is 6 times normal, and the RED LED blinks while the backspaced section is being played.
S1-2	FF/REW speed	OFF	ON: Maximum FF/REW speed is 20 times normal. OFF: Maximum FF/REW speed is 40 times normal.
S1-3	Mode after ending an insert edit	OFF	ON: Prerolls when the EDIT STOP button is pressed during insert editing. OFF: Enters the Play mode when the EDIT STOP button is pressed during insert editing.
S1-4	SUB SYNC switch	ON	ON: Locks to external sync signal during playback, and locks to input video signal during recording.
S1-5	Edit zero stop	OFF	ON: Editing stops at counter "zero" and then the tape prerolls.
S1-6	Insert with no CTL	OFF	ON: Insert editing is possible even on segments with no control pulses.
S1-7	Search dial select	OFF	ON: Enters the FF (REW) mode when the search dial is positioned to either extreme.
S1-8	Full-load stop	OFF	ON: The tape is fully loaded in the Stop mode.
S2-1	EE/PB	OFF	ON: EE video and audio are output during preroll except in recording.
S2-2	Warning disable	OFF	ON: Warning "06", "70" to "73" are not available.
S2-3	Auto rewind	OFF	ON: Auto rewind functions.
S2-4	Long still	OFF	ON: Long still function is not available.
S2-5	Record prohibit	OFF	ON: Recording is not possible even with cassettes with safety tab in place.
S2-6	Not used	OFF	Be sure to leave this switch in the OFF position.
S2-7	Direct eject	OFF	ON: Eject is possible from all modes.
S2-8	Direct search/jog	OFF	ON: Search mode can only be entered by pressing the SEARCH button.
S3-1 S3-2 S3-3	Not used	OFF OFF OFF	
S3-4	RM-88 switch	OFF	Set to ON when the RM-88 is connected.
S3-5 S3-6 S3-7	Preroll time	ON OFF ON	Determine preroll time.
S3-8	NTSC/PAL	OFF	Be sure to leave this switch in the OFF (PAL) position.

Time (sec)	2.4	0.5	3.0	5.0	7.0	10.0	15.0
S3-5	ON	ON	OFF	ON	OFF	ON	OFF
S3-6	ON	OFF	ON	ON	OFF	OFF	ON
S3-7	ON	OFF	OFF	OFF	ON	ON	ON

SPECIFICATIONS

GENERAL

Format : VHS PAL/S-VHS Europe standard
Power requirement : AC 110/127/220/240 V~, 50/60 Hz
Power consumption : 105 watts (Max. 115 watts with the Automatic Editing Control Unit, DC 12 V, 550 mA)
Dimensions : 42.9(W) x 18.8(H) x 51.4(D) cm
Weight : 25 kg
Operating temperature : 5°C to 40°C
Storage temperature : –20° C to 60°C
Tape speed : 23.39 mm/sec
Recording & Playback time : Max. 180 min. with JVC E-180/SE-180
Fast forward/Rewind time : Less than 4.5 min. for 180 min. tape
Search speed : Dial Search FWD/REW X ±1/30 to X ±10

VIDEO

Recording and playback : Rotary four-head, helical scanning system
Colour signal: Phase shift, converted sub-carrier direct recording
Video signal system : PAL-type colour signal S-VHS Europe type Y/C signal

Input
Line : 0.5 to 2.0 Vp-p, 75 ohms, unbalanced
YC627 Y: 1.0 Vp-p, 1 k-ohm, unbalanced
C: 0.9 Vp-p, 1 k-ohm, unbalanced
YC443 Y: 1.0 Vp-p, 75 ohms, unbalanced
C: 0.3 Vp-p, 75 ohms, unbalanced (Burst)

Output
Line : 1.0 Vp-p, 75 ohms, unbalanced
YC627 Y: 1.0 Vp-p, 1 k-ohm, unbalanced
C: 0.9 Vp-p, 1 k-ohm, unbalanced
YC443 Y: 1.0 Vp-p, 75 ohms, unbalanced
C: 0.3 Vp-p, 75 ohms, unbalanced (Burst)

Signal-to-noise ratio : More than 45 dB
Horizontal resolution : More than 400 lines (S-VHS)
More than 250 lines (VHS colour)
External SYNC input : 0.5 to 4.0 Vp-p, 75 ohms, unbalanced
RF output (DOC) : 0.5 Vp-p, 75 ohms, unbalanced

AUDIO

Input
Line : -6/0/+4 dBs, 10 k-ohms/600 ohms switchable, balanced (Hi-Fi/Normal)
Mic : -67 dBs, 10 k-ohms, balanced
Output
Line : -6/0/+4 dBs, Low impedance, balanced (Hi-Fi/Normal)
Headphone : ∞ to –17 dBs, 8 ohms
Monitor : -6 dBs Low impedance, unbalanced
Signal-to-noise ratio : More than 43 dB (NR-off) (at 3 %distortion) (Normal)
Dynamic range : More than 87 dB (Hi-Fi)
Frequency response : 20 to 20,000 Hz (Hi-Fi)
40 to 12,000 Hz (Normal)
Wow and flutter : Less than 0.005 % WRMS (Hi-Fi)
Less than 0.15 %WRMS (Normal)
Time code
Input : 0 dB ±6 dBs, 10 k-ohms
Output : 0 dB ±3 dBs, Low impedance

CONNECTORS

Video
Line input : BNC-type connector
Line output : BNC-type connectors
YC443/YC627 input/output : 7-pin connectors
Audio
Hi-Fi input/ouput : XLR connectors
Normal input/output : XLR connectors
Monitor output : RCA-pin connector
Microphones : 6 mm jacks
Headphones : 6 mm jack
Remote control : 45-pin connector
Accessories : 7-pin cable
: Switch cover

Design and specifications subject to change without notice.